

Somewhere in-between: inner speech and the proto-mental content

Mariela Destéfano

Abstract: In this paper I will offer an explanation of the arising mental content that focuses on the role of inner speech in reading acquisition. This explanation might be hybrid given that it includes a Vygotskian conception of inner speech (constructivism) related to dual-route psycholinguistic models of reading (cognitivism) and content-involving mental states based on socio-cultural practices (enactivism). In order to do that first, I will clarify some presuppositions that enable the offered conception of proto-content, second, I will explore the relation among inner speech and reading acquisition and lastly, I will develop a notion of “proto-content” grounded on the idea of internal aboutness.

Key words: Mental Representations, Reading Acquisition, Linguistic Content, Constructivism, Enactivism, Cognitivism.

1. Introduction

Mental content is the property that states of mind possess that allows them to represent how things are in the world. Contents are taken to specify the conditions of satisfaction, whether these are understood in terms of truth, accuracy, veridicality, that are met, or fail to be met, in any given instance of mental representation. To be in a state of mind with a mental representational content is to be in a state of mind for which the question of whether that state of mind represents or misrepresents how things are can arise. No one could deny that a naturalized explanation of mental content is needed in the philosophy of mind and cognitive sciences. In fact, from cognitivists such as Fodor (1987) to encactivist such as Hutto and Mying (2017) great effort have been made to naturalize content. However, as far as I am know, neither cognitivists nor enactivists have proposed a successful answer to the question about the origins of mental content.

On one side, cognitivists have been targeted of “the hard problem of content” according to which traditional semantic theories of cognition cannot give a scientifically respectable story of content (Hutto and Mying 2013, 2017). This is an intractable

theoretical puzzle for those explanatory naturalists who hold that information can be extracted from the world through environmental interactions, where such extraction contentfully informs concrete representational vehicles (Hutto and Myin 2017, xviii). The use of the resources of informational theories does not achieve the naturalization of mental content. For this reason, radical forms of enactivism deny that having thoughts with content is fundamental to all cognition.

On the other side, radical enactivists have been objected with “the gap problem” according to which there is an explanatory step between contentless minds and content involving thought for which enactivists could not account (Menary 2015). Menary explicates that “the radicals have a problem bridging the gap between basic cognitive processes and enculturated ones, since they think that meaning, or content, can only be present in a cognitive system when language and cultural scaffolding is present...” (p. 3 footnote 5). Certainly, it might be thought that in drawing a distinction between basic, non-contentful and non-basic, contentful minds enactivists introduce a deep discontinuity that is at odds with naturalism.

My main interest in this paper is to explain the emergence of content-involving cognition avoiding the evoked problems against cognitivism and enactivism. On the basis of Harnad (1992, 2002, 2005) approach, I will develop the idea that the cognitive architecture includes some inner states that have internal correction conditions. These states exhibit “proto-content” on the ground of purely internal resources. Proto-content is not supposed to be full-blown content given that it does not stand for any property of the external world. Particularly, proto-content shows what can be called “internal aboutness”. Both “the hard problem of content” and “the gap problem” would banish considering this approach of proto-mental contents.

On this view, the longed explanation of the origins of mental content depends on the interaction of different approaches of the mind. This story about content includes some fruitful aspects owned by (i) constructivism, (ii) cognitivism and (iii) enactivism. The one-sided perspective around mental content has been preventing a successful understanding of its origins. For this reason, I will offer an hybrid explanation of the arising mental content that focuses on the role of inner speech in reading acquisition. This explanation includes a Vygotskian conception of inner speech (constructivism)

related to dual route psycholinguistic models of reading (cognitivism) and content-involving cognition based on socio-cultural practices (enactivism).

This paper has been divided as follows. In section 2 I will clarify some important presuppositions that will enable my conception of proto-content. In section 3 I will explore the relation among inner speech and reading acquisition inasmuch this capacity grounds the possibility of proto-content, which will be developed in section 4. In the final section, I will discuss some concluding remarks emphasizing that putting aside the standard rivalry between cognitivism and radical enactivism, cognitive science is able to offer an alternative explanation of the origins of content that has better credentials.

2. Starting assumptions

To begin with, anyone seeking a serious explanation of contentful minds needs to narrow down the phenomenon. Mental content means the content of a mental state such as a thought, a belief, a desire, a fear, an intention, or a wish. A state with content is a state that represents some part or aspect of the world; its content is the way it represents the world as being (Brown 2016). Although it might be attributed both to animal and human minds, in this paper I will focus on the latter. Provided that it is necessary to attribute to nonhuman animals some kind of mental content, I will center the attention to the genealogy of linguistic mental content in human beings. Contrary to what might be thought, this attempt does not imply any evolutionary discontinuity between human and nonhuman animals. In fact, my proposal is compatible with a pluralistic approach to emerging content. I strongly believe that an adequate explanation of the full-range of cognitive capacities displayed by humans and animals deserves to posit many kind of mental contents: from more primitive to full-blown intentional ones. In this paper I will exclusively suggest an ontogenetical explanation of linguistic mental content.

This leads me to my second point. It is clear that a topic such as the origins of mental content requires a diachronic account. What is at issue is the history of content-involving minds. The arrival of mental content could be studied either referring to the evolutionary history of our species or focusing on the developmental history of humans within its own lifetime. Despite both- phylogenetic and a ontogenetic point of view- are legitimated kinds of diachronic explanations, in this paper I will favor an ontogenetic account of mental content. In the discussion around the psychological continuity between human and nonhuman animals the origins of content is considered from a

phylogenetic perspective (Hutto and Mying 2017). According Manery (2015) and Froese and Di Paolo (2009), radical enactivists about cognition have shown special difficulties facing the skeptical worries about evolutionary continuity. They identify a cognitive gap between nonhuman and human animals. However, there is another way to formulate a cognitive gap restricted to the case of human development. De Jaegher and Froese (2009) have referred to this missing link as the cognitive gap of the life-mind continuity thesis. This gap separates "...the activity of basic minds from the abstract cognition that is achieved by adult human minds" (Froese and Di Paolo 2009). In this case the gap is understood as the distance between child initial cognition and adult contentful mind. My main interest is to disclose this ontogenetical transition.

In this context, the origins of content will be studied assuming a (a) sociologized, (b) naturalized (c) internalized and (d) gradualized picture of the mind. Firstly, in this paper mental content will be conceived as a cognitive achievement that depends on social factors such as public linguistic practices. The hard problem of content had taught us that there is no obvious reasons to characterize semantic aspects of the mind in terms of basic biological functions (Hutto and Myini 2013). The way I see it, informational theories, such as teleosemantics, had failed to explain semantics from a purely biological point of view. Classic teleosemantic theories try to naturalize representational content by appeal to biological function and although this notion enables the organism to keep track of specific wordly items, it doesn't give rise to truth conditions properly owned by mental content. As a result, the explanation of mental content demands tools beyond the biological perspective.

As it was said, the notion of content involves the existence of some kind of correctness condition. To be in a contentful state of the mind is to represent things to be a certain way that they might not be so. According to the sociologized view, the process of mastering special kinds of sociocultural practices support linguistic meanings of the mind (Haugeland 1998). Correctness conditions of linguistic contents appear through a process of linguistic mastery. In this sense, a naturalistic account of these contents, which is not primary biological, should appeal to scientifically respectable resources such as developmental psychology and psycholinguistics. In this paper I will restrict the naturalized explanation of content to these scientific disciplines taking in consideration the performance of young children in the acquisition of reading capacities. This

commits myself to the methodological stance originally called “relaxed naturalism” by Hutto and Satne (2015).

However, against Hutto and Satne’s enactivism I will assume an internalist view of the mind. Philosophers of mind and cognitive science have used the term “internalism” associated with different theses. A common way to express internalism is to say that an individual’s mental content are fixed or determined by the intrinsic, physical properties of that individual, where this relation of determination has typically been understood in terms of the notion of supervenience (Wilson 1995). Following Gerter:

Since the work of Burge, Davidson, Kripke, and Putnam in the 1970’s philosophers of language and mind have engaged in extensive debate over the following question: Do mental content properties — such as thinking that quenches thirst — supervene on properties intrinsic to the thinker? To answer affirmatively is to endorse internalism (or “individualism”); a negative answer is an expression of externalism. (2012, 51).

Nevertheless, the notion of “internalism” assumed in this paper will depart from this metaphysical thesis about mental content’s determination. Particularly, I will endorse a methodological conception of “internalism”. According to this, the generalizations that serve to explain cognitive phenomena do not appeal essentially to external factors. Internalist inquiry means that cognitive science is framed as a science of states theoretically conceived independently of factors external to the organism. This kind of internalism recalls Chomsky’s one which is not related with any conscious manipulation of inner states. As Collins states, “when Chomsky speaks of “internalism”, he doesn’t have in mind an “inner theater” or essential conscious access to content” (2011, 176). On the contrary, the idea that the mind is built up by internal mental states is deeply related to the canonical form of psychological explanation where cognitive capacities are decomposed into smaller interconnected subpersonal subcapacities that jointly carry out the larger function as a whole (Cummins 1975).

Having admitted that cognitive capacities are the target of psychological explanations, in this paper I will focus on those capacities that serve as precursors of the early

manifestation of mental content. What I call a “gradualized picture of the mind” responds to the goal of finding intermediate stages of the development that would be needed for the acquisition of mature cognitive skills. Indeed, it is unlikely that adult capacities emerge out of nowhere without any intermediate phases (Bickerton 2001). There is a reason that makes me embrace this gradualism. This view agrees with Morgan’s canon which is imposed over psychological explanations. As it is known, Morgan (1894) stated that:

In no case may we interpret an action as the outcome of the exercise of a higher psychological faculty, if it can be interpreted as the outcome of the exercise of one which stands lower in the psychological scale (p.53)

Morgan’s canon is frequently held to impose requirements that are incompatible with the attribution of thoughts to prelinguistic infants and early hominids (Bermúdez 2003). Nonetheless, it is still difficult to imagine that the research into infant development will return to the methodological precepts of behaviorism (Bermúdez 2003). So, Morgan’s cannot compel us to support a rational attitude towards psychological explanations. In this sense, the development of content deserves an in-between explanation that avoid both behavioral biases and full-blown content.

3. Inner Speech in action

Acquisition of early literacy constitutes one of the most important development milestones in human life. The goal of reading is to understand full texts and not just identify single words. Children do not automatically learn how to comprehend information and they have to be patiently taught. As a result, meaningful texts allow them to make connections between their classrooms to the outside world. Research of psychogenesis of literacy shows that there are three main stages of learning to reading (Frith 1985). In the beginning, children look at written language as an object just as they look at other objects in the surrounding world. This is the pictorial stage before formal reading instruction, where children are able to memorizes, recognize and spell words as if they were common objects. Becoming aware of phonemes happens during the second stage, the phonological stage, in which children decode words into letters and connects letters to sounds, that is, the development of grapheme to phoneme transition. In this

phase, children focus on isolated letters or on relevant groups, and they rehearse linking graphemes to speech sounds to form words. Finally, the third stage corresponds to the orthographic stage, in which children has a large lexicon of visual units and reading time is determined by word frequency, rather than word length (Dehaene 2009) In what follows I will carefully examine the second stage of reading acquisition. I already mentioned that this is the moment when children discover the coordination between sounds that could be said or heard and symbols that could be written or read. Thanks to formal education, day by day they become able to segment sentences and words in many parts in order to establish some relations between oral segments and written ones. Dehaene (2009) observes that the first years of formal reading teaching are crucial for children's efficient development given the role of phonological awareness in this process. He stresses that it is necessary to explicitly teach children that speech is made of phonemes, and when phonemes are combined, they create words. This phonological stage is marked by peculiar regularization errors. The beginning reader can turn a few letters into sounds, but typically fails when a word is even mildly irregular. Besides, they show complexity effects: "a first-grader may be able to read simple syllables with a consonant followed by a vowel (CV), but typically experiences increasing difficulty as the number of consonants grows (CVC, CCVC, and so on). Complex words such as "strict" (CCCVCC) cannot be deciphered by a novice." (Dehaene 2009, 253). These findings indicate that reading acquisition progresses from simple to complex rules.

Most of the current models of reading postulate that reading relies on the coordination between two reading routes: the sub-lexical route and the lexical one (Coltheart et al. 2001, Ellis and Young 1992). The lexical route is generally used by fluent readers who are able to link orthographic representations with word meanings. However, the use of the sub-lexical route seems to be central in the phonological stage when phonological awareness is being enhanced. Researchers have discovered that both young children and adults read new written inputs using the grapheme-to-phoneme conversion which is the route that comes to supplement the letter-to-sound decoding employed by the sub-lexical route. This decoding procedure involves the division of written words into graphemes (letters or groups of letters), the mapping of sounds or phonemes to those graphemes, and the blending of the sounds together to produce a pronunciation (Raphiq et al. 2013). In brief, the sub-lexical route converts letters into speech sounds, and the lexical route, gives access to a mental dictionary of word meaning

(Henderson1985, Kay et al. 1985, Humphreys et al. 1990). In fact, people with phonological dyslexia show difficulties in decoding new written words since reading new words that are not in their lexicon requires grapheme-to-phoneme decoding, which appears to be impaired (Zabell & Everatt 2002).

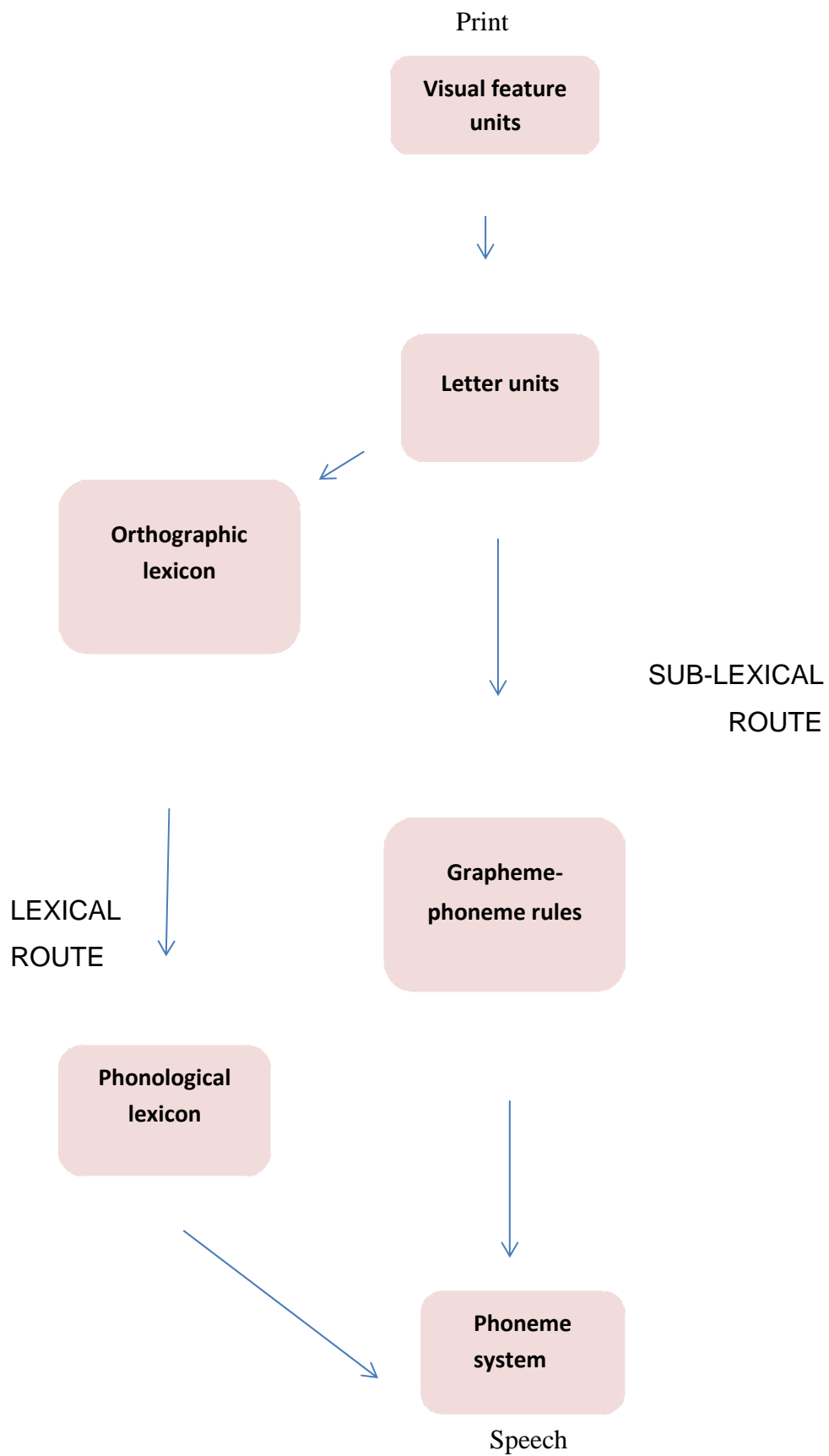


Figure 1. The dual route model, simplified version (Coltheart et al. 2001)

Conceded that phonological upgrade constitutes one of the central achievements in early literacy, which is the mechanism that improves the grapheme-to-phoneme conversion in the sub-lexical route? Certainly, this stage of acquisition evidences changes that come from regularity and complexity effects to the dissolution of these effects. This is a hard research question for psycholinguistics related to the elements that prompt the transition from phonological to orthographic stage (Ellis and Young 1992). One promissory line of research appeals to the role of inner speech in reading acquisition. There is a consensus in treating inner speech as some form of internal, self-directed inaudible speech. It is traditionally described as verbal thinking, internal monologue, mental self-talk, inner voice, subvocal rehearsal, or covert language behavior (Alderson-Day and Fernyhough 2015). In this sense, inner speech could be chiefly defined as the subjective experience of language in the absence of overt and audible articulation. This internal form of speech is usually distinguished from two external forms of speech such as social speech (oral or written speech directed to others) and private speech (audibly or subvocally articulated speech directed to oneself, sometimes referred to as egocentric speech) (Guerrero 2018).

Vygotsky was one of the first developmental psychologist who examine this experience of speaking silently in one's head and he proposed that it develops through the gradual internalization of linguistic interactions that have been shaped by social exchanges. Words that had previously been used to regulate the behavior of others are "turned back on the self" to regulate the child's own behavior. In the preschool and early school years, such self-directed speech is mainly overt and audible, constituting a developmental stage known as private speech. With further development, these overt dialogues with the self become internalized so that they are entirely covert and inaudible, marking the development of inner speech (Geva and Fernyhough 2019).

Studies on inner speech have shown that phonological representation is highly specified in this internalized social speech. For instance, Corcoran (1966) has shown that readers automatically access phonetics in inner speech during silent reading. Likewise, Özdemir et al. (2007) have reported that the "uniqueness point", the place in the sequence of the word's phonemes at which it deviates from every other word in the language, influenced phoneme monitoring in inner speech suggesting that inner speech is specified to the same level as overt speech. Lastly, Slevc and Ferreira (2006) have documented a

phonemic similarity effect in inner speech. All these studies confirm that phonological properties of the words are being manipulated during inner speaking episodes.

Many cognitive functions of inner speech have been identified by psychologists (Vicente and Martinez-Manrique 2011). Broadly construed, such functions involve thought broadcasting, behavior control, working memory, verbal self-regulation, such as reasoning, planning, memory, or attribution of mental states (Spelke 2003, Baddeley 1986, Law et al. 2013, Gilhooly 2005, Hardy 2006). Although inner speech in adulthood has largely been studied as a cognitive tool supporting other cognitive capacities, I rather focus on one of its functions in childhood. Liva et al. (1994) assert that “inner speech can be considered as a mediator between a text and a child, as mother reading a story to her child is a mediator between the book and the child” (p. 322). When children learn to read, internal speech allows them to fall back on previous acquired language facilitating linkage between oral and written words. Under this hypothesis, they run two experiments training poor reader 3rd graders on using inner speech in order to increase their reading capacities. As a result, children significantly improved their reading performance and researchers supported the regulative role of inner speech in reading acquisition. Liva et al. (1994)´s conclusions reinforce Vygotsky´s idea that inner speech has a general cognitive role of problem solving. More specifically, it solves the problem of making letter units privately audible in order to produce overt reading. Ellis and Young (1992)´s model introduces this possibility of internal speaking considering the feedback from what they call “the phoneme level” to “the auditory analysis system” meaning that phonemic sequences become listened by oneself. Thus, acoustic images could be internally used in the case of silent comprehension of written words (Ellis y Young 1992, 227). If this is the case, I think that, in reading acquisition, inner speech seems to be related with the grapheme-to-phoneme conversion. Let me say that this relation would be fundamental for the story of content that I am trying to tell. But, how could the relation between inner speech and grapheme-to-phoneme conversion be profitable for a theory of content? Let´s back to mental content.

4. Proto-mental content

According to the presented idea, inner speech would regulate the flow from orthographic to phonological information in silent reading. In this section It is the

specific way in which inner speech operates that makes me postulate proto-mental content in young children. In agreement with Ehrich (2006), I consider inner speech as a “problem solving device” used in reading process. Particularly in the case of infant readers, inner speech solves the sub-lexical problem of decoding the sounds of the words (/d/ /o/ /g/) exclusively from the supplied orthographic information (“dog”). How does operate inner speech and what kind of information does it use to perform this cognitive role? In what follows I will propose what I call “the phonological rehearsal” conception of inner speech which try to answer these questions.

Fernyhough (2004) proposed that inner speech should take two different forms: condensed inner speech, which includes the semantic and syntactic information that accompany internalization, and expanded inner speech, in which internal speech retains many of the phonological properties of overt speech. In Fernyhough’s model, the default setting for inner speech is condensed, with the transition to expanded inner speech resulting from cognitive challenge (Alderson-Day and Fernyhough 2015). Ehrich (2006) conceives inner speech as the elaborative space where meanings of the words are elicited in order to improve the reading performance. In this sense, Ehrich seems to include condensed inner speech in reading models. However, Ehrlich’s interpretation suggests that inner speech is related to the lexical route of reading (where meanings of the words are manipulated) and, instead of that, my proposal is centered on the relation between inner speech and the sub-lexical route. The reason of this is that reading acquisition strongly depends on sub-lexical route.

Sokolov (1975) provides empirical evidence that during reading, inner speech becomes abbreviated when familiar text is encountered and that, conversely, when more complex text is encountered, inner speech becomes more expanded. If this is the case for children, then they must use expanded inner speech during reading processes. In fact, Alderson-Day and Fernyhough state that:

“Children’s adoption of inner speech is evidenced relatively early in development in the apparent emergence of the phonological similarity effect around age 7 (Gathercole, 1998). The effect is typically evidenced when visually presented items that are phonologically similar prove harder to recall than phonologically dissimilar items, due to interference between item words that sound the same. When children are asked to learn a set of pictures, those aged 7

and over tend to exhibit a phonological similarity effect, suggesting that visual material is being recoded into a verbal form via subvocal rehearsal (i.e., inner speech).” (p.936)

This early phonological similarity effect shows that infant’s inner speech includes phonological information which could be useful for the grapheme-phoneme conversion involved in reading processes. When children are challenged during silent reading, the access to phonological information stored by inner speech could serve as a subvocal rehearsal that assist the retrieval of the words. Baddeley (1986) working memory’s model involves this kind of rehearsal within the phonological store through a mechanism referred to as “the phonological loop”. In the case of reading acquisition processes, I think that such mechanism could be called “phonological rehearsal”, which guides the search of the sounds to be read.

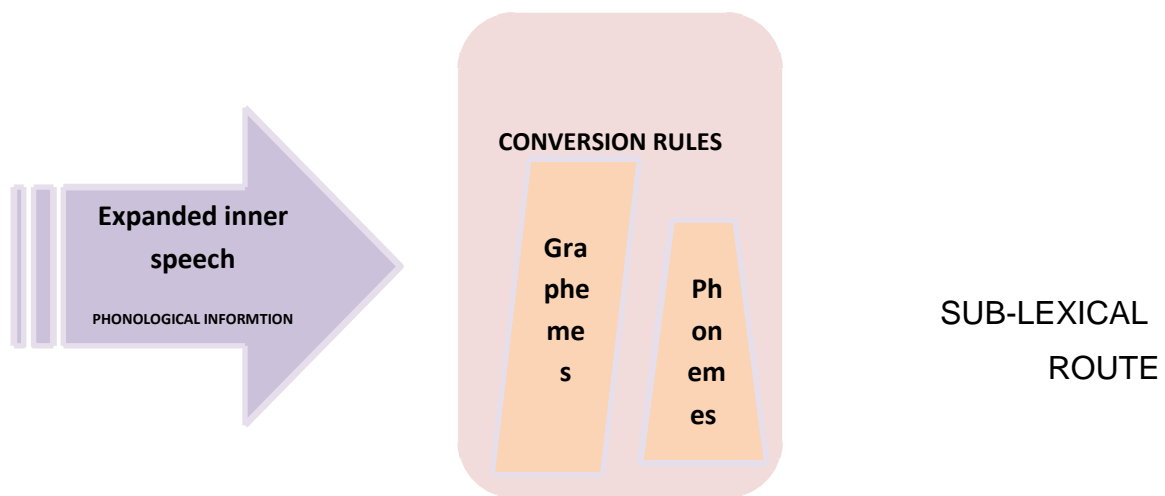


Figure 2. The “phonological rehearsal” conception of inner speech in reading acquisition.

As a result, the phonological rehearsal encourages and prevents some reading outputs. In what follows I will argue that these operations might manipulate some kind of proto-content. The way I see it, proto-contents are mental inner states which show the property of aboutness. Most philosophers agree that mental states are contentful because they involve some way of intentionality which is the feature of pointing, designating or

being about something (Brentano 1874). As Ramsey (2007) states: “It is hard to see how something could qualify as a representational mental state in the ordinary sense unless it was about something- unless it in some way stood for something else.” (p. 16). The phenomenon of aboutness or intentional directedness seems to involve a kind of relation between an item and a relatum (Morgan 2014). Typically, mental contents owned by thoughts, believes and desires are about a variety of types of things, including properties, abstract entities, individuals, relations and states of affairs. For example, my belief that Buenos Aires is the capital of Argentina is contentful because it is about Argentina, its seat of government, the city of Buenos Aires, and the relation between these things.

Despite the relation between inner speech and reading process does not include any mental states such as thoughts, believes and desires, it discloses some kind of directedness between phonemes and graphemes allowing the adscription of proto-contents. Correctly understood, figure 2 reveals that phonemes are exploited constituent elements of the model that stand for a relevant target domain of graphemes. In this context, “standing for” would characterize a mapping relation where phonological information (/cat/) serve as representations of the written words (“cat”). This correspondence from phonemes to graphemes deserve to be deepen. Firstly, the mapping is not based on any structural resemblance. Contrary to what could be thought, this is not a resemblance-based proposal since phonemes and graphemes are symbols and “nothing is more obvious than that symbols data structures don’t resemble what they represent” (Cummins 1989, 30-31). Hence, phonemes need not resemble graphemes and the “standing for” relation constitutes a mapping between non-pictorial “arbitrary objects” (Williams and Colling 2018, 1942).

Secondly, the mapping displays an asymmetrical relation between phonemes and graphemes. In reading processes, phonological information serve as representation of grapheme information but the opposite is not the case. Why does this asymmetry occur? When considering the mapping between phonemes and graphemes, inner speech boosts the conversion thanks to the phonological rehearsal illustrated in figure 2. The operations of inner speech appear to improve the cognitive task in question by solving the problem of conversion. In my proposal, inner speech works as a consumer mechanism that exploits an observer-dependent mapping. Following Milkowski (2011):

We cannot tell what we need to consider when determining whether there is a mapping if we do not already know that there should be a mapping between two entities. But to know that there is a mapping we should have to know these two entities; the notion of representation was supposed to tell us which entity the representation is related to. For this, we could use external observer...” (p. 151)

In other words, we need to know how to pick the target of the phoneme-grapheme conversion independently of the conversion itself. This is the familiar idea according to which a representation must represent something to a cognitive system, as a whole or to its part (Milkowski 2011, Cao 2011, Millikan 1984). It is useful to relate this conception of representations with Peirce’s original analysis of (non-mental) representations identifying three necessary components: a sign, an object and an interpreter. Within cognitive context, interpreter can be understood as a subpersonal mechanism that check out the information processed by other subpersonal mechanisms. Particularly in reading context, the mapped items must be ready to be utilized in a representational way by an evaluation mechanism such as inner speech.

The presence of inner speech as an evaluation mechanism reveals that the connection between phonemes and graphemes includes the normative dimension of error. As Bikhart (1993) states “error is important as far as it can be detected by the agent, and for that, agent need to have interest”. The debate over how to understand error in cognitive systems is often framed in terms of how to account misrepresentation (Lee 2018). The idea is that the capacity to represent is engaged with the capacity to misrepresent and therefore, we need to specify conditions under which there are misrepresentations. In the described reading process, the system can fail to behave appropriately when it designates the wrong phoneme (/b/) to a target grapheme (“p”). Inner speech indicates these errors by performing the phonological rehearsal. In the model I suggest that misrepresentation ought to be conceived of as the failure of phonological information to adequately stand-for its targets, failure which is identified thanks to inner speech’s operations. This account of error captures Cummins (1996)’s proposal according to which error is a form of mis-application of the correct representation. Ramsey (2007) describes it in the following passage:

Suppose the system is a chess-playing program with sub-systems that generate board states corresponding to actual elements of the game (these Cummins refers

to as “intenders”). Suppose further that one such sub-system generates a slot that is supposed to be filled with a representation of the next board configuration, which happens to be P2. P2 is thus the target for representation. If all goes well, the slot will be filled with a representation of P2, i.e., RP2. This slot-filling (variable binding) is what Cummins calls the application of the representation. Now, suppose the slot is instead filled with a representation of a different board position, namely, P3. An error would thereby occur because the intended target (P2) would not be represented by the representation that is applied (RP3). This sort of error is possible only when there is a mismatch between representation and target. Error is thus a form of mis-application of a representation with a fixed content to the wrong target.

To sum up, the proposed reading model shows some kind of directedness accompanied by the possibility of error or miss-application. Inner speech constitutes a third element between phonemes and graphemes needed to point it out. Someone could object that what I’ve been calling “proto-content” in fact constitute full blown content considering that it shows the typical conditions of satisfaction owned by contentful states. To prevent this interpretation I will argue that proto-content has the property of internal aboutness. The explained reading processes show a kind of directedness that resides in the head grounded on purely internal resources.

This directedness emerges due to the operations of the subpersonal systems that transforms phonemes into graphemes. In this sense, internal aboutness differs from the full blown aboutness because there is no connection between the symbols and the outer world. The connected domain of phonological items with its grapheme targets are inside a mechanical engine such as the human brain. This makes me believe that reading processes does not include full blown content which represents properties of the external and social world. However, I am not saying that proto-content have some kind of narrow content instead of wide content. According to the internalist approach (in the internalism/externalism debate in philosophy of mind and language) the content of representation is determined within the cognitive system. Content supervenes on intrinsic properties contrasting with the positions that are focused on content’s reference (Milkowski 2011). Proto-content should not be considered either as wide or as narrow kind of content. The internalism/externalism debate focuses on the determination of

content, but my proposal about the origins of content does not cover this explanatory need simply because there is not full blown content yet.

Why does a mind include proto-contents with internal aboutness? From a developmental point of view, I can hypothesize that these might be the precursors required for adult contentful minds. Proto-contents would evidence the primal structure of full blown content since they show some kind of aboutness and correctness condition. Nevertheless, proto-contents are not related with any element from the outer world and this makes me read them as intermediate mental states in the development. It is possible that these proto-contents in early reading acquisition enables the development of complex linguistic content presented in social transactions. I'd like to point out that this picture of the mind avoids both the gap problem, presented against radical enactivists, and the hard problem of content, presented against cognitivists. Firstly, proto-contents elude the gap between non-contentful and contentful minds simply because they are built on a cognitive architecture where there is no distinction between basic and non-basic capacities of the mind. Reading acquisition is taken into account and it should be considered as an hybrid capacity where cognitive and cultural aspects run together. Secondly, proto-contents evade the hard problem of content since they depart from the assumptions owned by informational theories. In fact, proto-contents have conditions of satisfaction and the subpersonal operations underlying reading capacity are affected by mis-applications identified by inner speech.

5. Conclusion

In this paper I've made much more of an effort to offer an initial explanation of the cognitive origins of linguistic mental content. What I've provided is just a preliminary sketch centered on the role of inner speech in early reading acquisition. It is true that psycholinguistic and phenomenological studies suggest that inner speech can vary in its phonological, semantic, and syntactic properties, from condensed to expanded. Focusing on expanded inner speech I proposed some features of a reading model where inner speech works together with graphemes-to-phonemes conversion rules. Proto-content would be the mental states that supervene on these operations and that evidence some kind of internal aboutness. As inner speech would be an in-between mechanism, and proto-content would be an in-between state, my explanation would be an in-

between account of content that includes cognitivists, enactivists and constructivists aspects of a theory of the mind.

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